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THE LECTURE METHOD VERSUS THE QUESTION-AND-ANSWER METHOD

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The purpose of this investigation was to determine through experimentation the relative value of the lecture and the question-and-answer methods of class instruction in the teaching of the social sciences. In order to secure concrete data on this problem it was decided to prepare a series of lessons on some topics with which the pupils were not familiar, teach this material by the two methods under consideration, and then test the results. The subject-matter selected for these lessons was the government of England and the government of Switzerland. These governments were chosen for two reasons: first, pupils in the junior and senior high school as a rule have never made a systematic study of either of these governments and, second, these governments are so different in form and organization that very little that was learned as a result of a study of one government would carry over into the study of the other government.

Each class tested was divided according to the rank method. While no attempt is made to justify this method of dividing a class, the experiment was conducted in such a manner that any variable which occurred as a result of this method of division was taken care of later by the method of cross-checking.

In conducting the recitation, an attempt was made to secure conditions as normal as possible. Certain limitations, however, were necessary. The assignments used in both sections were given the class in typewritten form without comment. All reference material and notebook work were abandoned as these would create variables over which there would be no control. All material to which reference was made in the lesson was mimeographed and placed in the hands of the pupils at the beginning of the twenty-

minute study period, and as soon as the recitation was over this material was collected to prevent the over-ambitious pupil from studying outside the class. The pupils were called on in alphabetical order to insure that the brighter ones did not do most of the reciting. Care was also taken to make sure that if a map or outline was used in one section, the same map or outline was likewise used in the check group section.

Both sections studied the same material in the same room under the same teacher. An equal amount of time elapsed between the study period and the recitation period in both sections. The same amount of time was given to the recitation period in each section. The only variable was the method of conducting the recitation. The method followed in the lecture section was of such a nature that it prevented any comment by the pupils, the aim in each case being to prohibit any other method of instruction entering into the experiment.

The method of testing, while not perfect, was far superior to the average methods of testing as found in our public schools. Fifty questions were asked concerning each lesson. After each question, four answers were given, one of which was right and the rest wrong. The pupils in each section were instructed to place a check mark after the correct answer.

Five lessons on the government of England were presented to Section A by the lecture method and to Section B by the question-and-answer method. As a means of checking the results of the five-day experiment, a sixth lesson on the government of Switzerland was presented to the same classes, except that this lesson was presented to Section A by the question-and-answer method and to Section B by the lecture method.

In the ninth, tenth, and eleventh grades of the University (Iowa) High School where this experiment was first conducted, much sickness was experienced among the pupils. Since it was impossible to use any of the scores of those pupils who had missed any part of any lesson, the experiment was carried to ten other high schools of the state, the lessons there being conducted by ten other teachers of social science who were interested in the problem.

The data obtained in this experiment were examined for the purpose of finding answers to three questions. (1) Do pupils learn more factual material from the lecture or from the question-and-answer method? (2) Which of these methods is better to use in teaching the pupils of the upper quartile? (3) Which of these methods is better to use in teaching the pupils of the lower quartile?

In order to answer the first question, the data for each class taught were collected for two groups: (1) those who were instructed by the lecture method and (2) those who were instructed by the question-and-answer method. Each pupil's record appeared in both columns; in one, it represented his grade when taught by the question-and-answer method, and in the other it represented his grade when taught by the lecture method. It is true that in one case the pupil studied the government of England and in the other the government of Switzerland. Nevertheless, each pupil studied and recited both lessons under exactly the same conditions, the only variable being the method used in the class instruction.

Table I is a summary table presenting the scores of 271 pupils who were instructed by the two methods described.

TABLE I
COMPARATIVE SCORES OF 271 PUPILS* TESTED ON SUBJECT-
MATTER TAUGHT BY THE QUESTION-AND-ANSWER METHOD
AND THE LECTURE METHOD

QUESTION-AND-ANSWER METHOD		LECTURE METHOD	
Score	Number of Pupils	Score	Number of Pupils
90-100.....	86	90-100.....	80
80-89.99.....	76	80-89.99.....	71
70-79.99.....	50	70-79.99.....	58
60-69.99.....	44	60-69.99.....	34
50-59.99.....	9	50-59.99.....	19
40-49.99.....	5	40-49.99.....	6
30-39.99.....	1	30-39.99.....	2
20-29.99.....	0	20-29.99.....	1
Total.....	271	Total.....	271
Median.....	83.25	Median.....	81.61

*Only those who were present at all recitations are considered in this table.

Table II shows the results of the two methods of teaching for all pupils who were ranked in the first quartile by the teacher.

TABLE II

QUARTILE DISTRIBUTION, ON THE BASIS OF TEST SCORES, OF 73 PUPILS IN GRADES VII TO XII BELONGING IN THE FIRST QUARTILE ACCORDING TO TEACHERS' RATINGS

METHOD	Q ₁		Q ₂		Q ₃		Q ₄	
	Number	Per-centage	Number	Per-centage	Number	Per-centage	Number	Per-centage
Question-and-answer.....	42	57.53	13	17.80	12	16.43	6	8.21
Lecture.....	49	67.12	12	16.43	9	12.60	3	4.10

Table III shows the results of the two methods of teaching for all pupils who were ranked in the fourth quartile by the teacher.

TABLE III

QUARTILE DISTRIBUTION, ON THE BASIS OF TEST SCORES, OF 69 PUPILS IN GRADES VII TO XII BELONGING IN THE FOURTH QUARTILE ACCORDING TO TEACHERS' RATINGS

METHOD	Q ₁		Q ₂		Q ₃		Q ₄	
	Number	Per-centage	Number	Per-centage	Number	Per-centage	Number	Per-centage
Question-and-answer.....	6	8.69	8	11.59	18	26.08	37	53.62
Lecture.....	5	7.24	6	8.62	16	23.18	42	60.86

Since this experiment was based on the teaching of government, any conclusions made will have to do with this type of material only. Again, since the value of each method is measured only by the results of certain types of examinations heretofore explained, it must be borne in mind that the conclusions reached as a result of this study are valid just to the extent that the method of measuring is accurate.

CONCLUSIONS

1. When subject-matter similar to the material taught in this experiment is to be presented, it makes but little difference, from

the standpoint of factual material learned, whether it is presented by the lecture method or the question-and-answer method.

2. Using the median as a measure of central tendency, it appears that the pupils in Grades VII to XII, inclusive, are able to learn more factual material by the question-and-answer method than by the lecture method. Since, however, the score in the question-and-answer method is only 1.64 per cent higher than that resulting from the lecture method, the gain is perhaps too little to affect educational methods.

3. The pupils in Grades VII, VIII, and IX, in so far as we were able to determine by the method used, are able to remember more factual material about government when taught by the question-and-answer method than by the lecture method.

4. In Grades X, XI, and XII it made but little difference, under the circumstances which prevailed throughout this investigation, whether the question-and-answer method or the lecture method was used. As a rule, however, the higher score resulted from the use of the lecture method.

5. The pupils who were ranked in the first quartile by the teacher were able to remember more factual material about government when taught by the lecture method.

6. The pupils who were ranked in the lower quartile by the teacher were able to remember more factual material about government when taught by the question-and-answer method.